Jim Odell Stuckey
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September 3, 2017

VIA FACSIMILE AND U.S. MAIL

The Honorable Henry D. McMaster
Governor of South Carolina
1100 Gervais Street
Columbia, South Carolina 29201

Dear Governor McMaster:

South Carolina Electric & Gas Company has received and reviewed carefully your letter of September 2, 2017, to Santee Cooper Senior Vice President and General Counsel J. Michael Baxley. SCE&G also has been provided a copy of your previous letter to Santee Cooper of August 31, 2017, demanding all "reports, documents, or information prepared or provided by the Bechtel Corporation in connection with the construction of V.C. Summer Units 2 and 3."

SCE&G asserts that, as required by a common interest and joint defense agreement between Santee Cooper and SCE&G, if Santee Cooper has decided that it should release the documents and information to you that you have requested, it should do so only in a manner and under terms and conditions that would protect the interests of both Santee Cooper and SCE&G in preserving the attorney-client and work product privileges that apply to the report. As Mr. Baxley's letter cautioned you, any waiver of the privilege with respect to the report would be harmful to the interests of both Santee Cooper and SCE&G in pending litigation against them.

In addition, Santee Cooper and SCE&G are pursuing claims to recover potentially billions of dollars in damages from Westinghouse Electric Corporation ("Westinghouse") and its affiliates in the United States Bankruptcy Court for the Southern District of New York, and a waiver of the privilege likely would impair the ability of Santee Cooper and SCE&G to recover those damages against Westinghouse and its affiliates. Maintaining the confidentiality of the Bechtel report would be consistent with the original purpose for which the report was prepared -- pursuant to an agreement between Bechtel and the law firm of Smith, Currie, & Hancock, LLP, which represented and advised Santee Cooper and SCE&G in anticipation of litigation. SCE&G intends to use the proceeds of any recovery in the bankruptcy proceedings to mitigate the impact of the abandonment of the new nuclear project on SCE&G's customers. We presume Santee Cooper would likewise use the proceeds of any recovery to mitigate the impact on its customers.

Because Santee Cooper, and, by extension, the State of South Carolina, pledged to SCE&G to maintain the confidentiality of information protected by the attorney-client privilege and the work product doctrine, and has no authority to unilaterally waive the privileges and contractual protections of private corporations such as SCE&G, SCE&G respectfully requests that if Santee Cooper delivers to you the information you have demanded, that you and the State of South Carolina respect and maintain the same privileges and confidentiality obligations that pertain to Santee Cooper as the contracting entity.

Thank you for the courtesy of providing a carbon copy of your September 2, 2017, letter to SCANA Corporation Chairman and Chief Executive Officer Kevin Marsh. Should you have any further questions or concerns, we would appreciate the opportunity to address them.

Sincerely,

Jim O. Stuckey

Jim Odell Stuckey

cc: J. Michael Baxley, Sr., Esq.
Thomas A. Limehouse, Jr., Esq.

santee cooper

J. Michael Baxley, Sr.
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September 3, 2017

Via Electronic Delivery and U.S. Mails

His Excellency Henry D. McMaster
Governor of South Carolina
1100 Gervais Street
Columbia, South Carolina 29201

Dear Governor McMaster,

We are in receipt of your letter of September 2 rejecting Santee Cooper's request for a delay while a judicial determination is made with respect to release of the Bechtel Report.

Your constitutional and statutory authority to direct Santee Cooper to furnish a copy of this document, as set forth in Article IV, Section 17 of the South Carolina Constitution and Section 1-3-10 of the South Carolina Code of Laws, is both understood and respected. We also note and accept your reference to the Rose v. Beasley case which holds that Section 1-3-10 imposes an affirmative duty on public officers to immediately furnish information to the Governor and further provides that "the statute allows a public officer no discretion to delay compliance with the Governor's request."

Therefore, in response to your directive to provide you a copy of the Bechtel Report, and without waiving any other privilege or immunity or legal objections so that we might protect Santee Cooper to the best extent possible under these circumstances, we will provide the document to you.

We renew our request and urge you to assist Santee Cooper in this action by considering certain restrictions on the handling of this document.

First, Santee Cooper agrees to immediately seek a judicial determination, later this week if possible, regarding the issues of privilege relating to the document.

Second, until that determination is made, to protect the privilege and confidentiality, we request that the document provided to you not be copied, distributed, or given to any other individual, even those within your office.

Third, we respectfully request that any contents of the document not be released to the media or any business, legal or financial entities.

It is imperative that we preserve any legal protections associated with this document, given the fact that we are already facing multiple litigation claims over V.C. Summer Units 2 and 3. Your cooperation with respect to these three requests will help us maintain these legal privileges.

Finally, we are prepared to provide this weekend to your representative Thomas Limehouse a sealed copy of the Bechtel Report. Thank you for your understanding of the Authority's difficult position.

Sincerely,

J. Michael Baxley [THL w/ permission]

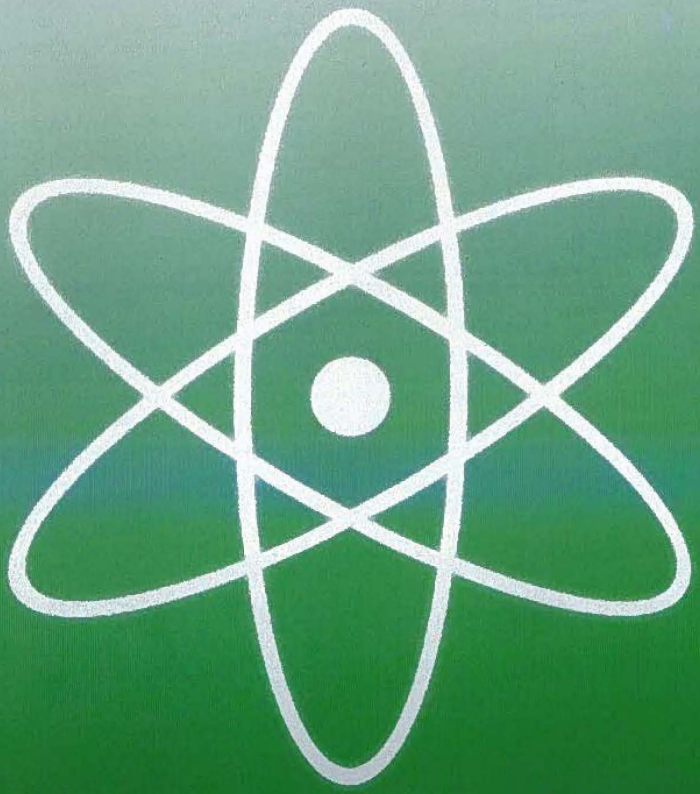
J. Michael Baxley

cc: W. Leighton Lord III
Thomas A. Limehouse, Jr.

South Carolina Office of Regulatory Staff

Report on South Carolina Electric & Gas Company's Annual Request for Revised Rates

Docket No. 2016-224-E



August 29, 2016

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Appendices

Introduction and Background

Pursuant to the Base Load Review Act ("BLRA"), South Carolina Electric & Gas Company ("SCE&G" or "Company") may request to revise rates no earlier than one year after the request of a Base Load Review Order or any prior revised rates request. In Docket No. 2016-224-E, SCE&G filed its Annual Request for Revised Rates ("Request") with the Public Service Commission of South Carolina ("Commission") on June 27, 2016, with an effective date of June 27, 2016. The Company states that as of June 30, 2016, it will have invested $664,314,000 in incremental Construction Work in Progress ("CWIP") related to its construction of V.C. Summer Nuclear Station Units 2 & 3 (the "Units" or "Project") that is not reflected in current rates and is requesting additional retail revenues of $74,161,000 to recover associated financing costs for the Units.

In accordance with the BLRA, the South Carolina Office of Regulatory Staff ("ORS") has two months to review SCE&G's Request and file a report with the Commission indicating the results of its examination. ORS's review of SCE&G's Request focuses on the Company's adherence to the requirements of the BLRA and applicable Commission orders ("Orders"). This report details the results of ORS's examination.

On March 2, 2009, the Commission approved SCE&G's request for the construction of the Units under the Engineering, Procurement and Construction ("EPC") Contract with Westinghouse Electric Company ("WEC") and CB&I Stone & Webster, Inc. ("CB&I") (collectively "the Consortium"). The Commission's approval of the Units can be found in the Base Load Review Order No. 2009-104(A) filed in Docket No. 2008-196-E.

Subsequent to the Base Load Review Order, the Commission has held four (4) hearings regarding the Units and issued the following Orders:

- **Order No. 2010-12:** Issued on January 21, 2010 and filed in Docket No. 2009-293-E. The Commission approved the Company's request to update milestones and capital cost schedules.

- **Order No. 2011-345:** Issued on May 16, 2011 and filed in Docket No. 2010-376-E. The Commission approved SCE&G's petition for updates and revisions to schedules related to the construction of the Units which included an increase to the base project cost of approximately $174 million.

- **Order No. 2012-884:** Issued on November 15, 2012 and filed in Docket No. 2012-203-E. The Commission approved SCE&G's petition for updates and revisions to schedules

related to the construction of the Units which included an increase to the base project cost of approximately $278 million.

- **Order No. 2015-661:** Issued on September 10, 2015 and filed in Docket No. 2015-103-E. The Commission approved SCE&G's petition for updates and revisions to schedules related to the construction of the Units which included an increase to the base project cost of approximately $698 million and revised the substantial completion dates of Units 2 & 3 to June 19, 2019 and June 16, 2020, respectively.

The anticipated dependable capacity from the Units is approximately 2,234 megawatts ("MW"), of which 55% (1,228 MW) will be available to serve SCE&G customers. South Carolina Public Service Authority ("Santee Cooper") is currently contracted to receive the remaining 45% (1,006 MW) of the electric output when the Units are in operation and is paying 45% of the costs of the construction of the Units. In October 2011, SCE&G and Santee Cooper executed the permanent construction and operating agreements for the Units. The agreements grant SCE&G primary responsibility for oversight of the construction process and operation of the Units as they come online. On March 30, 2012, the Nuclear Regulatory Commission voted to issue SCE&G a Combined Construction and Operating License ("COL") for the construction and operation of the Units.

In 2010, SCE&G reported that Santee Cooper began reviewing its level of ownership participation in the Units. Since then, Santee Cooper has sought partners in its 45% ownership. Santee Cooper signed a Letter of Intent with Duke Energy Carolinas, LLC in 2011. On January 28, 2014, Duke Energy Carolinas, LLC filed a report with the Commission stating that it concluded its negotiations with Santee Cooper which resulted in no change in ownership of the Units. On the day before, January 27, 2014, SCE&G announced that it had an agreement to acquire from Santee Cooper an additional 5% (110 MWs) ownership in the Units. The agreement is contingent upon the Commercial Operation Date of Unit 2. Ultimately, under the new agreement, SCE&G would own 60% and Santee Cooper would own 40% of the Units. The new agreement and the specific terms are subject to Commission approval. The Units continue to be governed by the ownership responsibilities as established in the Engineering, Procurement and Construction Contract ("EPC Contract").

Revised Rates Background

Pursuant to the BLRA, until a nuclear plant commences commercial operation, the rate adjustments related to the Units include recovery only of the weighted average cost of capital applied to the outstanding balance of CWIP, and shall not include depreciation or other items constituting a return of capital to the utility.

The BLRA allows SCE&G to choose the date on which to calculate the outstanding balance of CWIP. SCE&G utilized the CWIP balance as of June 30, 2016. Exhibit C of the Request sets forth the capital structure and weighted average cost of capital. Exhibit D of the Request sets forth an increase in retail rates totaling $74,161,000. It also shows the incremental CWIP balance for the Units, as of June 30, 2016 – which is not reflected in current retail rates – of $664,314,000. The Company's Request shows the total CWIP for the Units forecasted, as of June 30, 2016, to be approximately $4.016 billion.

Table 1 shows the requested and approved increases from all prior Revised Rate Filings for the Units with the Commission.

Table 1:

SCE&G Revised Rates History

Docket No.	Order No.	Requested Increase	ORS Examination	Approved Increase	Retail Increase	Rates Effective
2008-196-E	2009-104(A)	$8,986,000	($1,183,509)	$7,802,491	0.43%	4/1/2009
2009-211-E	2009-696	$22,533,000	$0	$22,533,000	1.10%	10/30/2009
2010-157-E	2010-625	$54,561,000	($7,260,000)	$47,301,000	2.31%	10/30/2010
2011-207-E	2011-738	$58,537,000	($5,753,658)	$52,783,342	2.43%	10/30/2011
2012-186-E	2012-761	$56,747,000	($4,598,087)	$52,148,913	2.33%	10/30/2012
2013-150-E	2013-680(A)	$69,671,000	($2,430,768)	$67,240,232	2.87%	10/30/2013
2014-187-E	2014-785	$70,038,000	($3,800,000)	$66,238,000	2.82%	10/30/2014
2015-160-E	2015-661	$69,648,000	($5,122,000)	$64,526,000	2.57%	10/30/2015
2016-224-E	TBD	$74,161,000	($9,733,187)	TBD	TBD	11/27/2016

CWIP Review

ORS's examination was limited to the actual CWIP reported for the review period of July 1, 2015, through June 30, 2016 ("Review Period") together with the associated revenue requirement and Allowance for Funds Used During Construction ("AFUDC") calculations. The ORS Audit Department reviewed only actual costs and did not examine or otherwise test any of the Company's projected results. The results of ORS's examination of the Request and the underlying financial records through June 30, 2016, are contained in Appendix A.

The purpose of the ORS Audit Department's examination was to verify that:

- The actual capital expenditures reflected in the Company's filing were complete, accurate, and supported by the books and records of the Company;
- The actual costs incurred were properly allocated between SCE&G and its co-owner, Santee Cooper, and accurately assigned to the cost categories set forth in the Request;
- The Company's gross cost of capital as of June 30, 2016 was calculated accurately and supported by the books and records of the Company; and
- The Company's calculations of the AFUDC were accurate and properly reflected in the CWIP balance at June 30, 2016.

Summary of Expenditure Examination Procedures

The key audit steps performed are summarized below:

- Interviewed key accounting personnel within SCE&G New Nuclear Deployment, and reviewed the audit work papers from the prior request to examine existing processes and gain an understanding of any changes in the accounting team or new processes being performed.
- Toured the construction facility periodically during the Review Period to provide ORS with a visual frame of reference in conducting its examination.
- Obtained invoice-level listings of all charges to CWIP through June 30, 2016 of the Review Period.
- Selected samples of invoice and journal entry items to test in detail, including inter-departmental cross-charges. Verified the mathematical accuracy of sampled invoices and related support, and verified that each was incurred during the Review Period.

- Ensured that the nature of each sample expenditure appeared to relate to the Project, and that the amounts in question appeared reasonable.

- Scrutinized the CWIP expenses under the EPC Contract ("EPC Items") to ensure the charges were approved by Company management prior to booking, and were coded into the appropriate construction cost categories as set forth in the Request. Base charges invoiced by the EPC vendors were verified against the EPC Contract, and escalation amounts were recalculated for accuracy using the appropriate inflation indices.

- Obtained from the Company certain roll-forward and trend schedules; tested them to ensure the ending CWIP balance from June 30, 2015, together with incremental costs incurred during the Review Period, supported the reported balance at June 30, 2016, in total and by cost category.

- Verified that invoice items were accrued in the month incurred.

- Determined that the ending CWIP totals for each month reconciled properly to general ledger detail. For the quarter-end balances, ensured they agreed with the Company's published Schedules 10-Q, as filed with the United States Securities & Exchange Commission ("SEC"), and with Form 1, as filed with the Federal Energy Regulatory Commission.

- Verified a sample of items from each month to ensure that payment had actually been made to the vendor by examining bank drafts and wire transfer acknowledgements.

- Traced each invoice item to the PeopleSoft© payment vouchers, noting that required approvals were present. Also traced the EPC Items to internal approval sheets signed by construction management.

- Performed a test of payroll costs charged to the Project, noting that employees' gross pay was supported by the payroll department records, that their time appeared to be properly allocated to the Project, and that charges reconciled to the general ledger detail.

- Recalculated the AFUDC for the test year using actual CWIP expenditures in lieu of the projected amounts reflected in the Request. Total AFUDC of $25,251,000 was calculated for the period under examination.

- Analyzed the gross cost of capital rate.

Detail of ORS Appendix A
Revenue Requirement and CWIP through June 30, 2016

Appendix A shows the CWIP included in rates as of June 30, 2015, incremental additions to CWIP and AFUDC for the Review Period, and total CWIP as of June 30, 2016. Appendix A is designed to reflect "Revised Rates Filing" projected CWIP as compared to both the "Actual" CWIP per book amount, and the maximum "Allowable" CWIP. All amounts presented on Appendix A reflect the Company's portion after applying the allocation to Santee Cooper.

Column (A) reflects Revised Rates Filing CWIP through June 30, 2016, of $4,016,393,000 and an adjusted net incremental CWIP for the Review Period of $664,314,000. Utilizing the resulting increase in the CWIP balance and the projected gross cost of capital, SCE&G's projected incremental revenue requirement per the Request was $76,795,000 in total, or $74,161,000 after applying the retail allocation factor of 96.57%.

Column (B) presents Actual CWIP through June 30, 2016, as verified by ORS examination, totaling $3,928,054,000. Incremental Actual CWIP for the Review Period was $713,987,000 before removing deferrals of $52,000 related to the COL Delay Study, and $138,152,000 related to Costs Pending Approval in Docket No. 2016-223-E. Total adjusted incremental CWIP for the Review Period is $575,783,000.

Column (C) reflects the Allowable CWIP through June 30, 2016, computed as $3,927,771,000 which includes removal of non-allowable expenditures. Incremental Allowable CWIP for the Review Period was $574,150,000 net of previously discussed deferrals. Utilizing the resulting increase in the CWIP balance and the gross cost of capital, the incremental, allowable revenue requirement is $66,716,000 in total, or $64,428,000 after applying the retail allocation factor of 96.57%.

Column (D) calculates the differences between Columns (B) and (C). The difference in Actual CWIP figures versus the Allowable column was $1,633,000 indicating that the actual, audited CWIP, per the Company books, was less than the Allowable CWIP by that amount. Of the $1,633,000, $198,000 is related to an SCE&G consultant contract for which the Company has agreed to not seek recovery of financing costs in this revised rates docket.

Column (E) reflects no costs to be carried over to the next Reporting Period.

Appendix A was prepared in accordance with recognized regulatory accounting practices and conforms to prior orders of the Commission.

Capital Structure

Section 58-33-280(B) of the BLRA states, "a utility must be allowed to recover through revised rates its weighted average cost of capital...calculated as of a date specified in the filing." Exhibit C of SCE&G's Request shows the capital structure for the Company as of March 31, 2016 adjusted for equity transfers and debt issuances planned through June 30, 2016.

The filed capital structure reflects two adjustments to the per-books amounts. An adjustment of $100 million to Common Equity included in Exhibit C of the Company's filing reflects the projected transfer of additional equity by June 30, 2016 from the parent company, SCANA, to SCE&G. This transfer has occurred. The second adjustment, to Long-Term Debt, reflects the issuance of $500 million in bonds anticipated at the time of the filing that also has now occurred.

Three subsequent adjustments were not indicated in the filing. First, the embedded cost of Long-Term Debt changed from 5.78% to 5.85% due to the Company's interest-rate swap losses on its two Second Quarter bond issuances for $425 million and $75 million, respectively. The second adjustment came from the addition of $36.435 million in Retained Earnings. A third very small adjustment of $40,915 came from the amortization of Accumulated Other Comprehensive Income. As a result of the second and third adjustments after the filing, Common Equity rose from $5.166 billion to $5.203 billion.

Appendix B of this report shows the capital structure as of March 31, 2016, updated to June 30, 2016 for the changes in Long-Term Debt and Common Equity. With Common Equity amounts and Embedded and Average Costs of Long-Term Debt updated, the Total Capitalization is now $10.132 billion the Common Equity Ratio is 51.35%, its Weighted Average Cost is 5.39% and its Gross-of-Tax cost is 8.77%. The Embedded and Weighted Average Cost of Long-Term Debt reflect the increase in the cost-rate discussed above. The Net-of-Tax Return on Total Capitalization is 8.24%, as opposed to the 8.19% that was filed, because the Embedded Cost of Debt and the Ratio of Common Equity were higher than filed. The Cost of Capital Gross of Tax is 11.62%, six basis points higher than in the filing. As in the 2011, 2012, 2013, 2014, and 2015 Requests, the capital structure includes $100,000 in Preferred Stock, as SCE&G filed in its capital structure. This is a token amount with a zero cost rate, held by SCANA, but with no return, for the purposes of maintaining certain reporting requirements to the SEC. The Ratios of Long-Term Debt and Common Equity are proportions of the Total Capitalization, less the $100,000 in Preferred Stock.

Rate Design and Allocation of Additional Revenue

Section 58-33-270(D) of the BLRA states, "In establishing revised rates, all factors, allocations, and rate designs shall be as determined in the utility's last rate order..." ORS examined the Company's proposed rate schedules in its Request and found the rate designs were consistent with those approved in the Company's last rate order, which is Commission Order No. 2012-951 found in Docket No. 2012-218-E.

Section 58-33-270(D) of the BLRA also requires "... that the additional revenue requirement to be collected through revised rates shall be allocated among customer classes based on the utility's South Carolina firm peak demand data from the prior year." ORS verified that the Company used the summer firm peak demand day of July 21, 2015, along with the coincident class firm peaks, to determine the appropriate percentages upon which to allocate the additional revenue requirements. The firm peak demand was based on the approved four-hour coincident peak allocation methodology. The appropriate South Carolina retail firm demand allocation of the system total is 96.57% as shown on Exhibit B of SCE&G's Request.

Revenue Verification

ORS verified that the corresponding approved rates for 2016 reflect actual revenues generated in the test year of 2015. ORS then utilized the most recent approved rates in effect at the time the Company filed its Request to obtain the most current annualized rate revenues. That is, ORS utilized SCE&G's rate schedules effective in May 2016.

Additionally, ORS verified that the proposed revised tariffs in Exhibit F of SCE&G's Request generate additional revenues totaling $74,158,276, which is shown in Exhibit E of the Company's Request.[1] ORS's review determined the appropriate retail revenue target increase to be $64.428 million instead of $74.161 million as proposed by the Company and shown in Exhibit D of its Request. The results of ORS's examination are shown in Appendix A. ORS's review reduced the Company's Request by $9.733 million or 13.12%. The total additional revenues of $64,427,813 allocated by class are shown in Appendix C. Appendix C also includes the annual revenues generated under the currently approved rates and the incremental change by customer class. Since the general lighting schedules do not contribute to SCE&G's firm peak demand, those schedules of rates were not affected by the revised rates filing and received no increase in charges.

[1] Exhibit G of the Company's Request provides general information based on internal financial reports estimating future revenue requirements and rate increases. It does not contain information necessary to evaluate the revenue increase being considered in this filing. Therefore, ORS does not utilize Exhibit G of the Company's Request in its analysis and review.

It should be noted that it is difficult to set rates to produce precise dollar amounts due to the general complexity of rate designs of the various tariffs, their interdependent relationships, and the large number of billing determinants associated with these calculations. The commonly accepted practice is to adjust rates while maintaining the appropriate rate design and generate revenues close to the desired level without exceeding the targeted amount.

Based on ORS's review and a reduction of $9.733 million to the Company's Request, the resulting overall increase to the retail class (excluding lighting) is 2.66%. Residential customers using 1,000 kWhs would see an increase of approximately $3.86 in their average monthly bill. If the Commission approves the findings of ORS's examination, the Company would then apply the reduced revenue amount in like proportion to the Company's Request using the above criteria. ORS will then verify that these new rates generate the approved revenue increase.

ORS's Review of SCE&G's Quarterly Reports

As required by the BLRA, SCE&G must include its most recent quarterly report on the status of construction of the Units. Accordingly, SCE&G included its 2016 1st Quarter Report ("1st Quarter Report") which was submitted on June 27th as Exhibit A of Docket Number 2016-224-E. The Report is in Commission Docket No. 2008-196-E and covers the quarter ending March 31, 2016. Subsequent to this filing, SCE&G published its 2016 2nd Quarter report ("2nd Quarter Report").

With reference to Section 58-33-275(A) of the BLRA, ORS's review of the Company's quarterly reports focuses on SCE&G's adherence to (1) the approved construction schedule and (2) the approved capital cost schedules. The following information summarizes ORS's review of SCE&G's most recent quarterly reports:

Approved Schedule and Budget Review

The 1st Quarter Report documents a path between Order No. 2015-661 and the October 27, 2015 Amendment ("Amendment" or "EPC Amendment") to the EPC Contract with WEC and CB&I. The Amendment released CB&I from the Consortium upon approval by SCE&G and via WEC's acquisition of the Stone and Webster subsidiary. WEC has since hired Fluor Corporation ("Fluor") as the subcontracted construction manager to assume responsibility for craft labor and construction activities.

SCE&G's 2nd Quarter Report provides the most recent budget and BLRA milestone status update available. As of SCE&G's 2nd Quarter Report, of the 146 original specific BLRA milestones used for reporting purposes, 110 were reported complete. Thirty-six remain to be completed and 35 milestones have been delayed by 14 months or less.

ORS monitors variances due to project changes (e.g., shifts in work scopes, payment time tables, construction schedule adjustments, Change Orders). Commission Order No. 2015-661 allowed an increase in gross construction cost of the project to approximately $6.828 billion. As of June 30, 2016, due to current escalation rates, the forecasted gross construction cost of the plant is approximately $7.687 billion, which represents an increase of approximately $859 million. On May 26, 2016 SCE&G filed with the Commission in Docket No. 2016-223-E a petition ("Petition") seeking approval to update the construction milestone schedule as well as the capital cost schedule for the Units. In its Petition, SCE&G is requesting that the Commission approve the modification of the construction schedule to reflect new substantial completion dates of August 31, 2019 and August 31, 2020 for Unit 2 and Unit 3, respectively. This Petition is the result of a settlement agreement reached between SCE&G and the Consortium in which CB&I exited as a consortium partner.

The Petition includes incremental capital costs that total approximately $852 million, which were reduced to approximately $846 million in SCE&G's testimony. The largest portion of the increase is $781.5 million in EPC Contract cost increases, comprised of $137.5 million in costs resulting from an EPC Amendment, $505.5 million in costs resulting from SCE&G's decision to exercise an option in the EPC Amendment that moves many of the EPC Contract costs to a fixed category ("Option"), $85.5 million resulting from a reversal of the credit for liquidated damages that SCE&G previously credited to its customers in Order No. 2015-661, and $52.5 million in increases due to Change Orders. As part of this proceeding SCE&G is also asking for approval of its decision to exercise the Option. The remaining cost increase are due to Owners Costs ($20.8 million), Escalation ($2.3 million) and AFUDC ($42.4 million).

The construction schedule and budget presented in SCE&G's Report is based on SCE&G's Petition. Therefore, until the Commission issues an order in response to SCE&G's Petition, ORS will not have the ability to provide complete updates on the status of the approved schedule or approved budget.

Conclusions

The purpose of the BLRA is to provide for recovery of financing costs associated with prudently incurred costs of new base load plants when constructed by investor-owned electrical utilities, while at the same time protecting customers of investor-owned electrical utilities from responsibility for imprudent financial obligations or costs. ORS reviewed SCE&G's Request, conducted an on-site examination of the Company's books and records regarding the Company's capital expenditures, and found the expenditures to be prudently incurred.

Based on the information reviewed, the additional revenue requested by SCE&G should be reduced by $9.733 million to reflect actual CWIP through June 30, 2016; and, the appropriate revenue increase is $64,427,813.

Appendix A

CWIP through June 30, 2016

Appendix A

South Carolina Office of Regulatory Staff
SCE&G - 2016 Revised Rates Filing
Construction Work In Progress (CWIP) through June 30, 2016
Docket No. 2016-224-E

($ in Thousands)

Cost Categories	SCE&G Revised Rates Filing	ORS Examination			
		Actual	Allowable	Difference	Carry Over to 2016-2017
	(A)	(B)	(C)	(D) (B-C)	(E)
CWIP in Rates as of June 30, 2015 *Per Commission Order No. 2015-712*	$ 3,214,067	$ 3,214,067	$ 3,214,067	$ -	$ -
Incremental Actual Additions to CWIP through March 31, 2016[1]	$ 530,205	$ 530,205	$ 530,055	$ 150	$ -
Incremental AFUDC through March 31, 2016	$ 18,364	$ 18,364	$ 18,361	$ 3	$ -
Incremental Additions to CWIP April 1 through June 30, 2016[1]	$ 245,776	$ 157,098	$ 157,048	$ 50	$ -
Incremental AFUDC April 1 through June 30, 2016	$ 7,981	$ 8,320	$ 8,240	$ 80	$ -
CWIP as of June 30, 2016[2]	$ 4,016,393	$ 3,928,054	$ 3,927,771	$ 283	$ -
Incremental CWIP before Adjustment	$ 802,326	$ 713,987	$ 713,704	$ 283	$ -
Deferral of 1/2 of Change Order No. 11 *(COL Delay Study Costs)*	$ (52)	$ (52)	$ (52)	$ -	$ -
Removal of Costs Pending Approval in Docket No. 2016-223-E[3]	$ (137,960)	$ (138,152)	$ (139,502)	$ 1,350	$ -
Incremental CWIP, as adjusted	$ 664,314	$ 575,783	$ 574,150	$ 1,633	$ -
Gross Cost of Capital	11.56%		11.62%		
Incremental Revenue Requirement	$ 76,795		$ 66,716		
Allocation Factor for Retail Operation	96.57%		96.57%		
Allocated Retail Revenue Requirement	**$ 74,161**		**$ 64,428**		

[1] CWIP reflects ORS's removal of non-allowable expenditures.
[2] ORS's examination reflects actual incremental CWIP amounts through June 30, 2016
[3] The difference in Column D reflects the removal of AFUDC corresponding to the pending costs.

Appendix B

Capitalization Ratios and Cost of Capital

Appendix B

South Carolina Office of Regulatory Staff

SCE&G 2016 Revised Rates Filing

Capitalization Ratios and Cost of Capital
As of June 30, 2016*
Docket No. 2016-224-E

Capital Cost Category	Amount	Ratio	Embedded Cost	Weighted Average Cost of Capital	Gross of Tax
Long-Term Debt	$4,928,770,000	48.65%	5.85%	2.84%	2.84%
Preferred Stock ǂ	$100,000	0.00%	0.00%	0.00%	0.00%
Common Equity	$5,202,853,439	51.35%	10.50%	5.39%	8.77%
Total Capitalization	$10,131,723,439	100.00%		8.24%	11.62%

*Reflects $500,000,000 Long-Term Debt issuances included in filing and issued on June 8, 2016, anticipated Equity transfers in filing, now realized in the amount of $100,000,000, and updated Debt Cost and Equity Dollars, with consequent capital costs.

ǂ The Preferred Stock amount is nominal in that it is used for Total Capitalization but not for the calculation of the Ratio Column because of Preferred Stock's 0.00% Embedded Cost

Appendix C

Revenue Requirement

Appendix C

South Carolina Office of Regulatory Staff

SCE&G 2016 Revised Rates Filing

Revenue Requirement

Docket No. 2016-224-E

Rate Class	Approved Annual Revenue	ORS Examination Annual Revenue	Incremental Change $	Incremental Change %
	(A)	(B)	(C) (B - A)	(D) (C / A)
Residential	$ 1,139,487,015	$ 1,170,161,097	$ 30,674,082	2.69%
Small General Service	$ 456,244,835	$ 468,080,224	$ 11,835,389	2.59%
Medium General Service	$ 234,042,454	$ 240,659,190	$ 6,616,736	2.83%
Large General Service	$ 595,300,160	$ 610,601,766	$ 15,301,606	2.57%
Retail Total *(Excluding Lighting)*	**$ 2,425,074,464**	**$ 2,489,502,277**	**$ 64,427,813**	**2.66%**

To: SMITH, ABNEY A JR[SASMITH@scana.com]; JOHNSON, SHIRLEY S[SWJOHNSON@scana.com]; HUTSON, WILLIAM V[WHUTSON@scana.com]; STEPHENS, MICHELE L[MICHELE.STEPHENS@scana.com]; LANIER, CYNTHIA B[CLANIER@scana.com]; WHATLEY, CAROLINE[CAROLINE.WHATLEY@scana.com]
From: FELKEL, MARGARET SHIRK
Sent: Thur 10/22/2015 10:35:55 AM
Importance: Normal
Subject: Final October ORS Agenda
Received: Thur 10/22/2015 10:35:57 AM
ORS Agenda_October 2015.pdf

Please see attached the final ORS Agenda for next week's site visit.

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SCANA Services - New Nuclear Deployment
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SCE&G VC Summer Units 2 & 3
October 27 & 28, 2015 ORS Site Visit Agenda
(Tuesday & Wednesday)

Cindy's fax (803) 933-7761 ***Shirley's fax (803) 933-7774***

I. Tuesday October 27, 2015 Tour Comments - Main Feed Pump Alignments are in progress, a walk by would be helpful.

8:00 am - 9:00 am	Construction (Alan Torres)
9:00 am - 10:30 am	Tour (Kyle Young/Myra Roseborough)
10:30 am - 11:00 am	Commercial (Skip, Michele, Margaret, Cindy)
11:00 am - 11:30 am	Licensing (April Rice)
11:30 am - 12:00 pm	Training (Andy Barbee-Paul Mathena)

Wednesday October 28, 2015

9:30 am - 10:00 am	Quality Assurance (Larry Cunningham)
10:00 am - 11:00 am	Engineering (Brad Stokes/Sheila Jean-Cyber Security)

SCANA

William Hutson, Cindy Lanier, Michele Stephens, Skip Smith, Caroline Whatley, Margaret Felkel

ORS

Allyn Powell, Gene Sault, Gaby Smith and Gary Jones

II. Construction Progress

a) Weekly Construction Metrics *(to include discussion of critical work fronts & status of project relative to the revised integrated schedule)*

i. *Discuss the apparent inconsistencies in the Unit 2 schedule in which the hydrotest and hot functional are delayed 5 months and the fuel load is delayed 6 months, but the substantial completion is only delayed 3 months. (BLRA Milestone Tracking for September 2015).*

ii. *Discuss the apparent inconsistency in the Unit 3 schedule in which near term dates have slipped consistently for the past few months, but the substantial completion date has not changed. Note that the summary schedules indicate that Unit 3 AB/Containment activities are up to 6 months late. (WS of 2015-10-12, Summary Schedule)*

iii. *Discuss additional plans to improve the productivity of on-site construction labor. All areas continue to show productivity factors well above the stated goal of 1.15.*

Mitigation and improvement plans over the previous 6 months do not appear to have resulted in any significant improvement. (Commercial Review Meeting slides of 2015-09-17, Slides 9 – 15 and summary of the Construction Effectiveness and Efficiency program).

iv. *Discuss the decline in the overall construction staffing from 3278 in June to 2485 in August and the impact on the schedule. (Consortium 2015-09-17 MSMM, dated 2015-10-14, p. 79, Slide 134).*

b) Unit 2 Nuclear Island

i. *Discuss the schedule and status of completion of welding CA01 to the embedment plates. (Repeat from the September meeting).*

ii. *Provide the schedules for completing the remaining in-situ work on CA20, CA04 and CA05. (No specific reference).*

iii. *Section III piping spools continue to be delivered late. At what point does this adversely impact the overall schedule and what mitigation measures are being pursued. (Consortium 2015-09-17 MSMM, dated 2015-10-14, p. 85, Slide 153).*

c) **Unit** 2 Turbine **Building**

i. *Discuss the schedule slippage in the TG concrete placement from 2015-11-18 to 2015-12-11 and potential mitigation measures or additional controls put in place. (WCM of 2015-10-12, p.22)*

ii. *Discuss the summary schedule that indicates that Condenser B is greater than 6 months behind schedule. (WS of 2015-10-12, Summary Schedule)*

d) **Unit** 3 **Nuclear Island**, *including the significant schedule slippages, especially of Line 1 from 2015-09-24 to 2015-12-30 and any mitigation and/or recovery activities. (WCM of 2015-10-12, p. 20).*

e) **Unit** 3 Turbine **Building**

i. *Discuss the extent and duration of the work suspension due to lack of labor forces. (WCM of 2015-10-12, p. 35).*

ii. *Discuss the overall plan to maintain sufficient resources to complete Unit TB. (No specific reference).*

iii. *10/15/15 POD- Pg. 20- CA04 out of tolerance issues appear to be similar to U2-CA04, were "lessons learned" from U2 incorporated into U3, please explain.*

f) **Cooling** Towers

g) **Raw Water System**

h) **Offsite Water System**

i) **Containment** Vessels, *including the schedule for ring sets*

j) **Shield Buildings**

i. *Discuss the status and schedule of the NNI mitigation plan for accelerating delivery of the SB panels. (Repeat from previous meetings).*

ii. *Discuss the status and schedule for the SB roof fabrication. (Repeat from the September meeting).*

iii. *Clarify the status and schedule of the concrete placement in the first course of the SB panels (not clear from currently available information).*

iv. *Confirm that erection of course 2 of the SB panels has begun. (Consortium MSMM, p. 37, Slide 49 has it scheduled for 2015-10-10 and status on WCM is not clear).*

k) Onsite and offsite storage

i. *Discuss the status of storage at the airport storage facility and the availability for an ORS visit. (Repeat from previous meetings)*

ii. *WCM—10/19/15- Pg. 40/52- Please provide update of Storage and PM's on stored equipment (Report due in Oct)*

l) Structural & mechanical modules fabrication and schedule (delivery schedules for all fabrication vendors; include a discussion of Unit 3)

i. *Discuss the mitigation plans for the critical U2/U3 mechanical modules. Schedules continue to be delayed. (Repeat from September meeting).*

ii. *Discuss the mitigation plan for the critical Greenberry mechanical and floor modules. (Repeat from September meeting). Also include a discussion of the actions taken to resolve issues identified in the 2015-09-10 facilities visit.*

iii. *Discuss the mitigation plan for the critical Dubose stair modules. (Repeat from September meeting).*

iv. *Confirm that the final sub-module kit from SMCI is due on site 2015-10-21 (Consortium 2015-09-17 MSMM, dated 2015-10-14, p. 50, Slide 76)*

v. *Discuss the module scope of work being performed by TANE. (Consortium 2015-09-17 MSMM, dated 2015-10-14, p. 34, Slide 44).*

vi. *Address the impact of and resolution schedule for the recently identified issue that piping weld locations did not account for pipe support locations. (WCM o 2015-10-12, p. 9).*

vii. *Discuss the Toshiba/IHI mitigation and schedule improvement plan on Unit 3 CA01 (Consortium 2015-09-17 MSMM, dated 2015-10-14, Item 1.6, p. 1)*

viii. *Discuss possible dates for L. Charles visit*

m) Annex Building

i. *Discuss the schedule and constraints for the mudmat placement due 2015-11-18 and basement pour due 2016-01-21. (Consortium 2015-09-17 MSMM, dated 2015-10-14, p. 52, Slide 80).*

III. Licensing and Permitting

a) NRC visits/reviews

b) License Amendment Requests (LARs) and Preliminary Amendment Requests (PARs)

i. *Discuss the content of the supplement to LAR 111 submitted 2015-09-23 and the NRC reaction thus far. (WS of 2015-10-12, p. 31).*

ii. *Discuss the status of LAR 30 and the results of the pre-submittal meeting held on 2015-10-22. (WS of 2015-10-12, p. 31).*

iii. *Discuss licensing status/schedule of CAS. (Follow up from previous meetings). What is meant by the redaction and affidavit? (MPSR for September, Item 10, p. 24).*

iv. *Discuss the changes resulting from the assessment plan update for regulatory compliance completed on 2015-07-31. (QESC of 2015-08-31, Slide 8).*

IV. Equipment

a) Doosan

i) Unit 3 Steam Generators

ii) Unit 3 Reactor Vessel

b) IBF/Tioga

i) Unit 3 Reactor Coolant Pump Loop Piping

c) Mangiarotti

i) Unit 3 Pressurizer

ii) Passive Residual Heat Removal (PRHR) Heat Exchangers (discuss the status and schedule of repairs)

d) Curtiss Wright/EMD - Reactor Coolant Pumps, *including the status of the root cause analysis on the pump impeller issue (repeat from July meeting). Is a new endurance test required?*

e) SPX Copes Vulcan – Squib Valves (to include status of EQ test)

f) Switchyard

i) Discuss the testing program on the capacitors and the status of the on-going investigation and resolution

ii) Discuss the delivery schedule for the Unit 3 Tx and whether there is an adverse impact due to bridge damage from the recent flooding. (POD of 2015-10-15, p. 23)

V. Engineering

a) Discuss the results of the WEC/CB&I Engineering interface workshop held in Charlotte on 09/15 and 09/16. (MPSR for September, Item 4, p. 12).

b) Explain the role and composition of the Design Change Implementation Board (DCIB) and identify when meetings are held. (MPSR for September, Item 10, p. 23).

c) *Discuss the findings from the summary of design changes since April 30, 2015 which was requested by SCE&G that WEC compile. (Consortium 2015-09-17 MSMM, dated 2015-10-14, Item III, p. 3).*

d) *Discuss the results from the Vendor Summit. (Consortium 2015-09-17 MSMM, dated 2015-10-14, tem IV, p. 4).*

e) *POD-10/15- Pg 24- Emergent Issues list item 34- Tubesheet Thickness generic issue. Does this effect Safety relate Heat exchangers? If so, please identify affected equipment.*

f) *10/13/15-WCM Pg. 50- Toshiba/IHI behind on shipment of 18-U 3 CA01 Sub modules. What impact is this having on U 3 schedule?*

g) *K-7-Monthly Progress Report dated 9/30/15-Pg. 12/68-Meeting held to discuss Master Equipment List- Is SCE&G satisfied with the direction and timing. Is equipment Identification and Labeling incorporated into this work?*

h) *Pg. 52/68- Action ID- NPA-VS-02574- Requires formalizing the efficiencies between the 2 units. Please provide a copy for ORS to review.*

i) *S-4 Box-10/13/15-Pg.3- CIRT results of Roof Components*

VI. Financial/Commercial

a) Overall Status of Budget

b) Status of Change Orders

iii) Executed Change Orders

iv) Pending/Potential Change Order

(1) COL delay, design of shield buildings, design of structural modules, and Unit 2 rock condition (CO #16) (Schedule impact, changes to LT storage, any financial impacts?)

(2) Commercial Settlement – resolves multiple outstanding issues, no increase to EPC costs (CO #17)

(3) AP1000 Cyber Security remaining work scope

(4) Site Layout Changes

(5) Active Notices

c) BLRA milestones

d) Discuss the Status of the Bechtel Assessment and the top ten issues noted thus far.

e) K-7-10/15/15- Pg. 3/13-CRM- Discuss Company's view of report. Discuss why current external cost forecast is the same as December 2014 forecast given the lack of productivity improvement. Please provide an update on Settlement discussions to resolve "deficient invoices".

f) Please identify the changes that will be made to the CRM as a result of the PSC approval of the Petition and when these changes will be complete.

VII. Quality Assurance

a) *Discuss significant results of the 10/12 – 10/15 CB&I surveillance of CB&I-LC (September Consortium MSR, Item 3, p. 5)*

b) *Discuss significant results of the 10/05- 10/08 CB&I surveillance of Cives (September Consortium MSR, Item 3, p. 6)*

c) *Discuss significant results of the 10/19 – 10/22 CB&I audit of AECON (September Consortium MSR, Item 3, p. 5)*

d) *Discuss significant results of the 10/05 – 10/08 CB&I surveillance of Gerdau (September Consortium MSR, Item 3, p. 6)*

e) *Discuss significant results of the 10/12 – 10/15 CB&I audit of Dubose. (September Consortium MSR, Item 3, p. 6).*

f) *Discuss significant results of the 09/28 – 10/01 CB&I surveillance of SMCI (September Consortium MSR, Item 3, p. 7)*

g) *POD- 10/08/15- Procurement discussed the need to seek alternative supplier for CBI-Laurens Piping- Please discuss the issues surrounding this change.*

VIII. Operational Readiness

a) *Discuss the status of the following programs which were to be back on schedule by the date indicated (SCE&G June MSR, p. 32):*
   i. *EMI/RFI by 8/6*
   ii. *Pumps by 8/10*
   iii. *Breakers by 7/31*
   iv. *Motor Reliability by 8/10*
   v. *Batteries, Chargers and Support Systems by 7/23*

b) *Discuss the status of the following programs that were to start by the indicated date (SCE&G June MSR, p. 34)*
   i. *ISI by 8/1*
   ii. *Electrical Cable Aging Management by 5/1/2013*
   iii. *Irradiated Fuel Inspection by 8/1*

c) *Discuss the status of the labeling program (QESC of 2015-08-31, Slide 23).*

d) *Discuss lessons learned from meeting with SNDPC and WANO on Haiyang startup test program. (QESC of 2015-08-31, Slide 22)*

IX. Training

a) *Discuss impact and mitigation plans for the training staff attrition (QESC of 2015-08-31, Slides 25 and 28).*

DIRECT TESTIMONY OF

STEPHEN A. BYRNE

ON BEHALF OF

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DOCKET NO. 2015-103-E

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND POSITION.

A. My name is Stephen A. Byrne and my business address is 220 Operation Way, Cayce, South Carolina. I am President for Generation and Transmission of South Carolina Electric & Gas Company ("SCE&G" or the "Company").

Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I have a Chemical Engineering degree from Wayne State University. After graduation, I started my nuclear career working for the Toledo Edison Company at the Davis-Besse Nuclear Plant. I was granted a Senior Reactor Operator License by the Nuclear Regulatory Commission ("NRC") in 1987. From 1984 to 1995, I held the positions of Shift Technical Advisor, Control Room Supervisor, Shift Manager, Electrical Maintenance Superintendent, Instrument and Controls Maintenance Superintendent, and Operations Manager. I began working for SCE&G in 1995 as the Plant Manager at the V.C. Summer plant. Thereafter, I was promoted to Vice President and

Chief Nuclear Officer. In 2004, I was promoted to the position of Senior Vice President for Generation, Nuclear and Fossil Hydro. I was promoted to the position of Executive Vice President for Generation in 2008 and to Executive Vice President for Generation and Transmission in early 2011. I was promoted to President for Generation and Transmission and Chief Operating Officer of SCE&G in 2012.

Q. WHAT ARE YOUR DUTIES WITH SCE&G?

A. As President of Generation and Transmission and Chief Operating Officer for SCE&G, I am in charge of overseeing the generation and transmission of electricity for the Company. I also oversee all nuclear operations. Included in my area of responsibility is the New Nuclear Deployment ("NND") project in which Westinghouse Electric Company, LLC ("WEC") and Chicago Bridge & Iron ("CB&I") (collectively "WEC/CB&I") are constructing two Westinghouse AP1000 nuclear generating units in Jenkinsville, South Carolina, (the "Units") that are jointly owned by SCE&G and South Carolina Public Service Authority ("Santee Cooper").

Q. HAVE YOU EVER TESTIFIED BEFORE THIS COMMISSION?

A. Yes. I have testified before the Public Service Commission of South Carolina (the "Commission") in several past proceedings.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to discuss the current status of construction of the new nuclear Units; the new construction schedule proposed here which is based on the revised, fully-integrated construction schedule provided to SCE&G by WEC/CB&I in the third quarter of 2014 (the "Revised, Fully-Integrated Construction Schedule"); the changes in commercial operations dates for the Units; the updates in cost forecasts; and the operational, contractual and other matters related to the updates to the cost and construction schedules proposed in this proceeding. This testimony is also submitted in satisfaction of the requirement imposed by the Commission in Order 2009-104(A) that the Company provides annual status reports concerning its progress in constructing the Units.

PROJECT UPDATE

Q. PLEASE PROVIDE AN OVERVIEW OF THE PROJECT STATUS.

A. Concerning current status, the project is passing through an important time of transition related to the risks and challenges that will define our efforts going forward. When we began the project, the most important risks were related to first-of-a-kind nuclear construction activities. This project is one of two new nuclear construction projects to be initiated in the United States since the 1970s. It is being licensed by the NRC under an entirely new regulatory framework contained in 10 C.F.R. Part 52. In the early stages of the project, you would have expected risks to reflect that first-of-a-kind nature of the undertaking.

Today, we still face substantial risks and challenges in completing the project. But many of the uncertainties related to first-of-a-kind activities have been resolved or substantially mitigated. While unanticipated problems are always possible, the challenge of completing the Units is now shifting away from first-of-a-kind activities where major new design, performance, fabrication or regulatory challenges predominate. Today, execution risks related to construction, fabrication and acceptance testing are at the forefront. These tasks pose important challenges, and the challenges are commensurate in scale and complexity with the scale and complexity of this project. But qualitatively, these challenges are not that different from the challenges encountered in other major generation projects. It is a sign of the progression of the project that execution risks related to construction, fabrication and testing risks increasingly define the project rather than the first-of-a-kind nuclear project risks. Reaching this point represents an important milestone in our progress toward completion.

Q. COULD YOU PLEASE ELABORATE ON THE PROJECT'S RISKS AND CHALLENGES AS THEY CURRENTLY STAND?

A. Much of the change in the risk profile of the project has to do with the major risk factors that are being wholly or partially mitigated. For example, in the 2008 BLRA Combined Application, we identified 19 major permits, certifications or categories of permits that were required to construct the Units. *See* Combined Application in Docket No. 2008-196-E

at Exhibit J, Chart B. Eighteen of the 19 have now been issued and one was determined not to be needed. Receipt of these permits represents the successful resolution of a major risk factor for this project.

Q. COULD YOU OUTLINE SOME OF THE KEY LICENSES, PERMITS AND CERTIFICATIONS THAT THE PROJECT HAS RECEIVED TO DATE?

A. Yes. We have now received:

1. The Combined Operating Licenses ("COLs") for the two Units that were issued by the NRC under 10 C.F.R. Part 52;

2. Amendments to the Design Control Documents ("DCDs") for the AP1000 Units through DCD Revision 19 that were approved by the NRC to incorporate design enhancements to the Units;

3. A Clean Water Act Section 404 permit that was issued by the Army Corps of Engineers related to work in on-site wetlands;

4. Several permits associated with use of Lake Monticello as a source of cooling water and potable water for the project that were issued by the Federal Energy Regulatory Commission ("FERC");

5. A Clean Water Act Section 401 Water Quality Certification and an Environmental Impact Statement issued under the National Environmental Policy Act ("NEPA") for the project, including associated transmission projects, to support other federal permits;

6. Multiple construction and storm-water permits that were issued by the South Carolina Department of Health and Environmental Control ("DHEC");

7. Several National Pollutant Discharge Elimination System ("NPDES") permits associated with the on-site waste water treatment plant and discharge of blow-down water from the Units' cooling system that were issued by DHEC; and

8. Certificates under the Utility Facility Siting and Environmental Protection Act that were issued by this Commission for the construction of 305 circuit miles of new or reconfigured 230 kV transmission lines to deliver power from the project to our customers.

Q. WHAT OTHER RISK FACTORS HAVE BEEN REDUCED OR AMELIORATED?

A. Let me review where we stand on several of the key risk factors including those that were identified when we came before the Commission in 2008 in the first BLRA proceeding.

1. **Financial Risk.** In 2008, we identified a key risk factor for the project to be uncertainties as to whether financial markets would support SCE&G in raising the capital needed to support construction**.** As Mr. Marsh's testimony demonstrates, SCE&G has successfully met this challenge thus far. The financial markets have developed confidence in the BLRA largely because ORS and the Commission have applied that statute

in a fair and consistent way. Because of that confidence, to date markets have been comfortable providing capital to the project on reasonable terms, even in times of generally unfavorable market conditions. However, as Kevin Marsh indicates, our May 2015 bond issuance indicates that markets appear to be more concerned about regulatory risk than they have been in the past. Nonetheless, we believe that if regulatory conditions remain stable and consistent, financial markets will continue to support the project through to completion.

2. **Major Equipment**. The design and fabrication of major equipment for the AP1000 Units was an important risk factor for the project when we began. As we stated in 2008:

> Quality controls and manufacturing standards for components for nuclear plants are very stringent and the processes involved may place unique demands on component manufacturers. It is possible that manufacturers of unique components (*e.g.*, steam generators and pump assemblies or other large components or modules used in the Units) and manufacturers of other sensitive components may encounter problems with their manufacturing processes or in meeting quality control standards. Many of the very largest components and forging used in the Units can only be produced at a limited number of foundries or other facilities worldwide. Any difficulties that these foundries or other facilities encounter in meeting fabrication schedules or quality standards may cause schedule or price issues for the Units.

Combined Application in Docket No. 2008-196-E at Exhibit J, page 7.

The first-of-a-kind risks associated with major equipment fabrication have now largely been mitigated. All of the major equipment for an AP1000 unit has been fabricated at least once and in some cases two or

more times. More than a third of the major equipment for Unit 3, or five out of the thirteen components, have arrived on site. All of the major equipment for Unit 2 has been received on site except three of the thirteen components. In this regard,

a. The Passive Residual Heat Removal Heat Exchanger ("PRHR") while fabricated has been returned to Italy for installation of a Supplemental Restraint Bar to improve its performance and durability.

b. As of May 2015, the Reactor Coolant Pumps ("RCPs") for the AP1000 were successfully undergoing engineering and endurance testing with redesigned bearings. Previous endurance tests indicated a potential problem with the performance of the RCPs' bearings.

c. Squib Valves are important parts of the passive safety features of the AP1000 Units. Prior performance testing of the Squib Valves had shown problems with certain seals. Those seals have been redesigned and as of May 2015 the redesigned valves were undergoing testing and performing satisfactorily.

3. Shipping. The construction of the Units is supported by a global supply chain. Several ultra-large and ultra-heavy components of the Units are fabricated in Asia and Europe. In 2008, we identified important risks related to shipping these components safely and without delay to the

site. To date, there have been no disruptions or losses due to shipping. The Deaerators, which were approximately 148 feet in length and weighed in excess of 300 tons, have been successfully delivered to the site. Delivery of this equipment was the project's most difficult and complex shipping challenge and was met without loss or delay, or any disruption to the construction plan. The Deaerators were shipped by sea to the Port of Charleston and then by barge to a Santee Cooper dock facility on Lake Marion. From there they were taken on special trailers to the site.

4. **Design Finalization.** Design finalization has been an important risk factor for the project since its inception. As we stated in 2008,

> Under the current NRC licensing approach, there is engineering work related to the Units that will not be completed until after the COL is issued. Any engineering or design changes that arise out of that work, or the engineering or design changes required to address problems that arise once construction is underway, are potential risks which could impact cost schedules and construction schedules for the Units.

Combined Application in Docket No. 2008-196-E at Exhibit J, page 6.

The most challenging aspect of design finalization of the AP1000 Units is finalization of the Nuclear Island ("NI"). The NI includes the Shield Building and containment vessel which house the reactor, steam-generators, refueling equipment and passive safety components of the Units, and the Auxiliary Building, which houses other nuclear components of the plant. Design delay and design changes related to the NI have been a

major source of delay in the project to date and have contributed to delay in submodule production. As of May 2015, design finalization for the NI was approaching completion, indicating that risks associated with this aspect of the project are being mitigated.

A related development that has reduced risks due to design finalization has been the NRC's successful implementation of the Preliminary Amendment Request ("PAR") process. The License Amendment Request ("LAR") process, which has been in place for some time, allows SCE&G to obtain license amendments when needed to address changes in design documents. These changes arise from finalization of design, constructability issues identified in the field, and similar matters. Processing a certain number of LARs is a necessary and expected part of a construction project involving an NRC licensed facility.

The PAR process was developed less than five years ago to support new nuclear construction. A PAR requires the NRC staff to issue a "notice of no objection" and allows construction work to proceed at the applicant's risk pending issuance of a LAR. We have used the PAR process in several cases to mitigate potential delay in the project. The NRC's successful implementation of the PAR process has been very helpful in mitigating design finalization risk.

5. **Hiring, Training and Retention of Operating Staff.** Another very important risk factor that has been highlighted since the

beginning of the project was the possible "[i]nability [of SCE&G] to hire sufficient qualified people to operate the plants." *See* Combined Application, Docket No. 2008-196-E, at Exhibit J, Chart A. Without a sufficient team of licensed operators and other staff to operate the Units, initial fuel load would be prohibited and the project would come to a halt. To support initial fuel load, the team must be large enough to staff all necessary positions at the Units around the clock seven days a week with provisions for training and development time and personal and sick leave. Each Unit requires no less than three Senior Reactor Operators ("SROs") and two Reactor Operators ("ROs") to be on duty at all times. Training as a licensed reactor operator takes between 3-7 years depending on the level of nuclear experience that the candidate brings to the job. Because the AP1000 is a new design, there is no pool of trained and licensed AP1000 reactor operators and other personnel potentially available to fill gaps in SCE&G's ranks.

As the Commission is aware from past proceedings, SCE&G's concerns about this staffing issue grew as the project progressed and concerns about the difficulty in finding qualified candidates for training as reactor operators and other skilled positions came into focus. With support from the Commission and ORS, SCE&G redoubled its efforts and expanded its hiring targets to allow for greater rates of attrition. *See* Order 2012-884 at pp. 47-48. We currently have a group of 60 well-qualified

licensed reactor operator candidates in training and a similarly sufficient number of candidates in training for other technical positions. Training is proceeding well and to date retention has been good. As things stand today, the risk factor related to hiring the staff for the Units when constructed has largely been mitigated. As described below, risk factors remain related to completing the licensing of our staff and maintaining our current retention rates.

6. **Hiring, Training and Retention of Construction Labor.** Another significant risk factor which was recognized when the project began is that WEC/CB&I might potentially be unable to recruit, train and retain a sufficient work force to support construction activities on-site. As we reported to the Commission in 2008, "staffing risks for the Units include both the possible shortage of required workers, which could impact both schedule and cost, and the risk that bidding for the available work force will raise labor costs to levels higher than anticipated." Combined Application in Docket No. 2008-196-E at Exhibit J, page 9. A construction work force of approximately 3,500 WEC/CB&I and subcontractor personnel have been recruited, hired and trained and is working on site. To date, the contractors have been able to staff the project, but we continue to monitor the effect of an improving economy, and increasing labor demand on their ability to do so.

7. **Site Conditions.** Every construction site has the potential to conceal soil, rock, hydrological or other conditions that can impede or halt construction. Discovering and dealing with those conditions is an important part of the initial stage of any construction project. The construction project for the Units is now past this site discovery stage. Excavation, grading, mapping of subsurface rock, and other site preparation work are complete for the nuclear Units. The most significant issue that came to light in this work was related to a depression in the bedrock underlying Unit 2. It was resolved with the installation of concrete fill. As we stand today, site discovery risk has largely been resolved.

8. **Transmission.** The design, routing and permitting of transmission facilities was another important risk factor in the early stages of the project. As the Commission is aware, the siting plan and schedule for constructing the transmission assets required to support the Units was disrupted when the Corps of Engineers, at the insistence of the Environmental Protection Agency, decided to change its position related to the acceptability of assessing potential transmission-related environmental impacts based on a macro-corridor approach. *See* Order No. 2012-884 at 40-41.

In response to this challenge, SCE&G accelerated the siting of transmission by placing all but approximately 6 miles of transmission lines in or adjacent to existing rights of way. As of May 2015, all necessary

transmission lines and off-site substations have now been sited and either are completed or are under construction. In addition, the new Unit 2 & 3 switchyard located on the site has been completed and energized. At present, transmission related risk factors are largely resolved.

9. **Fukushima** – In 2008, SCE&G disclosed that

> events that are hypothetical and difficult to predict could result in a change in the current level of political, legislative, regulatory and public support for nuclear generation in particular or for the Units specifically. Such a change could in turn result in additional costs, delays, and difficulty in receiving permits, licenses or approvals for the Units and could possibly place the cost and schedules of the Units in jeopardy. While such events are difficult to predict or envision, any event that casts doubt on the continued safety and reliability of nuclear power . . . could result in such a reversal.

Combined Application, Docket No. 2008-196-E, at Exhibit J, pp.5-6.

On March 11, 2011, a 9.0 magnitude earthquake occurred off the eastern coast of Japan. The epicenter of the earthquake was 112 miles from Tokyo Electric Power Company's Fukushima Daiichi Nuclear Power Station. The earthquake was the largest Japan has ever experienced and caused all of the operating units at the Fukushima Daiichi Nuclear Power Station (Fukushima Units 1, 2, and 3) to automatically scram on seismic reactor protection system trips.

After the earthquake, the first of a series of seven tsunamis arrived at the site. The maximum tsunami height that impacted the site was estimated

to be 46 to 49 feet. This exceeded the design basis tsunami height and inundated the area surrounding Fukushima Units 1-4 to a depth of 13 to 16 feet above grade, causing extensive damage to site buildings and flooding of the turbine and reactor buildings. Despite their best efforts, the operators lost the ability to cool the Fukushima Units resulting in damage to the nuclear fuel shortly after the loss of cooling capabilities.

The Fukushima event was the realization of the sort of major disaster risk that was disclosed in 2008. Fukushima could easily have soured public support for nuclear power, delaying and complicating SCE&G's ability to complete the Units.

However, the feared reaction did not occur. President Obama quickly went to the public. He committed his administration, through the NRC, to conduct a comprehensive review of the safety of U.S. nuclear units in light of the disaster. He promised that lessons learned would be identified and applied. Through President Obama's leadership the United States avoided a "knee-jerk" reaction to halt nuclear construction or to close nuclear plants as some proposed.

The location and seismic profile of the Jenkinsville site and the more modern design standards and passive safety features of the AP1000 unit make a disaster on the scale of Fukushima extremely remote for SCE&G's project. Nonetheless, the NRC's review of the Fukushima event has resulted in important improvements in the resources, procedures and safety

plans for U.S. nuclear reactors. Some of the increased costs experienced in this project since 2011 are a direct result of the application of lessons learned through Fukushima. However, the feared result from such an event, a wholesale loss of public, political and regulatory support for nuclear power, never materialized. This risk factor was triggered but overcome.

10. **Summary.** Risks will remain as to all of these items. They will not disappear until construction of the Units or the applicable components of them are complete and they have been inspected, tested and placed into service. Nonetheless, the nature and extent of risks associated with these items has been greatly mitigated by the progress made on the project to date.

In this regard, one important fact reducing risks is that construction of the first AP1000 reactor at the Sanmen site in China is largely complete physically. That reactor is undergoing flushing and purging in preparation for hydrostatic testing. SCE&G continues to benefit from lessons learned in the Chinese construction project. In fact, Westinghouse personnel participating in the startup of the Chinese reactors are scheduled to participate in the start-up of our Units. The risk profile of our project has changed significantly since the project began. Startup of the Chinese unit will provide an important opportunity to identify any yet undisclosed risks.

In the United States, TVA is also approaching the completion of the

Watts Bar 2 nuclear plant in Tennessee. Construction on Watts Bar Units 1 and 2 began in 1973. Construction on Unit 2 was suspended in 1988 when it was approximately 80% complete, but was resumed in 2007. Watts Bar Unit 2 will be the last of the pre-AP1000 Westinghouse units to be completed. Through cooperation with TVA we have gained valuable information about the practical issues involved in system turnovers and pre-operational testing. Several of our start-up engineers plan to assist in TVA's start-up activities at Watts Bar to gain information in this area.

Q. WHAT DO YOU CONSIDER TO BE THE MOST IMPORTANT CHALLENGES THAT THE PROJECT FACES GOING FORWARD?

A. As I indicated earlier, the project seems to be moving past first-of-a-kind activities and major design, performance or fabrication challenges to the challenge of executing construction, fabrication and acceptance testing tasks. I do not mean in any way to minimize the importance of these remaining challenges. The project continues to be highly complex with thousands of interdependent tasks and multiple opportunities for problems and delay, even where contractors and subcontractors use great skill and care. In my opinion, the major challenges appear today to be as follows:

1. **Enforcing the EPC Contract while Maintaining a Working Relationship with WEC/CB&I.** It is a critical necessity for the

project that we effectively enforce the EPC Contract for the benefit of the customers of SCE&G and Santee Cooper. But effectively managing a project of this scope and complexity also requires a close working relationship between the owners and the contractor. This leads to an important challenge, that of maintaining an effective working relationship with WEC/CB&I in spite of mounting commercial disputes over the rights of the parties under the EPC Contract. Striking the proper balance between these two potentially conflicting requirements is a challenge now and will be an increasing challenge going forward. Failure in either direction could be a risk to the project. This effort is complicated by the high level of turnover in WEC/CB&I project management. The senior on-site project managers have resigned, or have been replaced several times since the project began. This turnover has made establishing and maintaining effective working relationships a challenge.

2. **Maintaining Financial Community Support Through a Predictable Regulatory Environment for the Project.** As discussed above, the financial community has demonstrated its willingness to fund the project even in adverse market conditions. However, this willingness depends on the continuation of predictable regulatory environment for the project such as ORS and this Commission have established to date. If the financial community were to lose its confidence in the predictability of regulatory treatment for this project, the Company could lose the ability to

raise the funds needed to complete it on reasonable terms, if at all. This is a very important risk factor for the project going forward.

3. **Modules and Submodules.** The use of modular construction for nuclear units was new to the commercial nuclear industry in the United States with these projects. In 2008, SCE&G identified risks associated with this production technique as an important risk factor for the project. *See* Combined Application in Docket No. 2008-196-E at Exhibit J, p.7.

> [T]he construction of the Units will employ standardized designs and advanced modular construction processes. The project schedules are based on efficiency anticipated from the use of these techniques. . . . Standardized design and advanced modular construction has not been used to build a nuclear unit in the United States to date. The construction process and schedule is subject to the risk that the benefits from standardized designs and advanced modular construction may not prove to be as great as expected.

See Combined Application in Docket No. 2008-196-E at Exhibit J, p.8.

Experience has shown that to be the case. Delay in production of modules, submodules and Shield Building panels has been a major source of delay for the project. This remains a key focus area for concern going forward.

However, there are indications that problems in this area are lessening. Three of the six major structural modules for Unit 2 (CA04, CA05, and CA20) have now been fabricated and set in place. The fabrication of a fourth (CA01) is physically complete. All submodules for a fifth (CA02) are on site. Submodules for the sixth module (CA03) are being

received. There are one hundred and sixty-seven (167) Shield Building cylinder panels for each Unit. As of May 2015, more than sixty-eight (68) Unit 2 and six (6) Unit 3 Shield Building cylinder panels had been received on site and initial welding of the first ring of them had begun. However, module and submodule production remains a major challenge for the project.

4. **Shield Building Air Inlet and Tension Ring.** Among the last items of the NI design to be finalized is the design for the Shield Building Air Inlet and Tension Ring. These are design features at the top of the vertical walls of the Shield Building and are the most complicated sets of Shield Building panels to be fabricated.

Delay in design finalization for these items has resulted in delay in finalizing their procurement. WEC/CB&I assures SCE&G that these panels can be fabricated and delivered to site on schedule. Nonetheless, Shield Building construction is currently a critical path item for the project. This means that a delay in fabricating the Shield Building Air Inlet or Tension Ring panels could delay completion of the project. SCE&G is monitoring this area closely.

5. **Productivity Factors.** Construction companies like WEC/CB&I base their construction plans on data they compile indicating the expected amount of labor required to complete specific construction tasks. One measure of productivity is the ratio between the amount of labor

actually required to perform a particular task, and the amount of labor anticipated to be required, the so called productivity factor, or PF. Higher PFs indicate more labor hours were required than expected.

In compiling a construction plan and budget, the design and engineering documents are reviewed to determine the amount or volume of commodities that need to be installed. The appropriate expected productivity labor factor is applied to each item. Doing so determines the amount of labor required for each scope of work. The amount of labor which is calculated in this way determines both the cost of construction and the schedule for construction.

For various reasons, to date WEC/CB&I has not met the overall PF on which its original cost estimates were based. In preparing the Revised, Fully-Integrated Construction Schedule, WEC/CB&I forecasted an increase its PF across the board. (The higher the rate indicates more hours required for a task). SCE&G has not accepted responsibility to pay for this increased labor. Unfavorable productivity factors have been a matter of frank and direct discussion between the parties, and WEC/CB&I's senior leadership has recognized the need to improve in this area. In justifying their confidence in the revised rate on which the current construction schedule is based, WEC/CB&I points to things like reduced delay in submodule production, increasing levels of design finalization, and lessons learned from construction of the first AP1000 unit in China. They also

point to the increasing adaptation by the project's work-force to the requirements of nuclear construction. They further reference the assumption that productivity for Unit 3 will improve due to the experience gained in completing similar scopes of work on Unit 2.

SCE&G fully supports WEC/CB&I in its efforts to improve labor productivity and will continue to monitor WEC/CB&I's performance and demand improvement. But the possibility that WEC/CB&I will fail to meet current productivity assumptions for the project represents an important risk to both the cost forecasts and the construction schedule for the project

6. **Testing and Start Up.** In 2008, the NRC's implementation of its new regulatory approach to licensing nuclear units was seen as a major risk factor for the projects. Previously, the NRC issued a permit to begin nuclear construction at the beginning of a project. It only issued a license to operate the unit after construction was complete and comprehensive post-construction testing was done. Under the new approach, which is contained in 10 C.F.R. Part 52, the NRC now issues a single license to build and operate a new nuclear unit. This happens at the start of the construction process. Construction takes place under an active nuclear operating license with all of the regulatory oversight that this entails.

As construction proceeds, and before a new unit is placed in commercial service, the licensee is required to complete a specified

regimen of Inspections, Tests, Analyses and Acceptance Criteria ("ITAACs"). Successfully completing those ITAACs to the satisfaction of the NRC demonstrates that a new unit has been built in conformity with the design documents and the COL and will perform as designed. This ITAAC process is entirely new to the industry as of the current projects. There are 873 ITAACs that must be completed for each Unit, or 1,746 for the project.

Uncertainties about how ITAACs would be administered was an important risk factor that SCE&G identified in 2008: "[T]he NRC is still developing the process for approving the results of ITAAC tests once they are completed and for resolving disputes or other issues related to the results of those tests." Combined Application, Docket No. 2008-196-E, at Exhibit J, page 4. The NRC has now issued regulatory guidance resolving some of the outstanding issues concerning the review of ITAAC Closure Notification ("ICN") packages. *See* Guidance for ITAAC Closure, 80 Fed. Reg. 265 (January 2, 2015). However, there are still important issues to be resolved, such as how a hearing will be conducted if ITAAC results are challenged. Furthermore, the sheer number of ITAACs to be completed poses a challenge to the schedule for the substantial completion of the Units.

As of late May 2015, SCE&G has successfully completed 22 ITAAC packages and has submitted 20 ICN packages to the NRC. While the ITAAC process seems to be working satisfactorily at present,

completing the required ITAAC program on schedule remains an important risk factor for the project.

7. **Failure to Obtain NRC Certification of the Full Scope Simulator.** Plant simulators are computer systems designed to model the response of a generating plant to changing operating conditions and operator inputs. They are used for operator training and testing and to support plant operations. Certification of a simulator by the NRC as a Plant Reference Simulator ("PRS") allows that simulator to be used to support an operating nuclear unit and for all training purposes. Successful Integrated Systems Validation ("ISV") testing is necessary for the NRC to approve a plant simulator to serve as a PRS.

During the first quarter of 2015, WEC conducted the required ISV testing on the Unit 2 and 3 plant simulators. As of May 2015, SCE&G and WEC are evaluating the results. If the NRC accepts ISV testing as sufficient, the documentation supporting certification of the simulators as PRS could be completed by the end of 2015.

This approval schedule will not permit certification of the Unit 2 and 3 PRSs in time for them to be used in conducting the integrated operator simulator exams for the first class of candidates seeking licensing as Reactor Operators ("ROs") and Senior Reactor Operators ("SROs"). That exam was scheduled to be offered in May 2015. The schedule also may not

support testing for the second class of candidates. Their exams are scheduled for November 2015.

In response, WEC and SCE&G have requested the NRC to approve the simulators as Commission-Approved Simulators ("CASs") under the process specified in 10 C.F.R. 55.46(b). However, it is not clear that the NRC will grant CAS approval. The NRC has also indicated that approval of the simulator as a PRS could be delayed until Instrumentation and Control ("I&C") systems for the Units are installed and ITAAC testing is completed. If the NRC takes this position, and denies CAS certification for the simulator, the training and licensing schedule for ROs and SROs candidates might not support initial fuel load for the Units.

8. **Retaining Operating Staff in the Face of Delay.** Delay in completing the Units can cause morale problems among the SROs, ROs and other operating staff that are being trained to operate the Units. These individuals' opportunities for advancement and job satisfaction are often related to operating experience. Delaying the start of the Units postpones the time when operating experience becomes available. A risk factor for the project at present is that morale problems due to delay could increase attrition in these areas.

9. **Instrumentation and Controls Acceptance Testing**. While several existing nuclear units have been retrofitted with digital Instrumentation and Control ("I&C") systems, the AP1000 is the first United

States reactor to be designed with a site-wide integrated digital I&C system as original equipment. To address testing and commissioning of the new integrated I&C system, WEC has developed a Digital Test Strategy ("DTS") to demonstrate the AP1000 integrated I&C system compliance with design requirements and regulatory commitments. While informal feedback from the NRC has generally been positive, formal acceptance of the DTS by the NRC has not been received. If the NRC does not concur with the DTS and requires that hardware and software testing be delayed until installation is complete, that testing could result in a delay in the scheduled completion of the Units.

CURRENT CONSTRUCTION STATUS

Q. DO YOU HAVE PHOTOGRAPHS OR SLIDES THAT ILLUSTRATE THE STATUS OF CONSTRUCTION AND FABRICATION ACTIVITIES RELATED TO THE UNITS?

A. Yes. Those slides are attached to my testimony as Exhibit No. __ (SAB-1). Let me now review those slides with the Commission and the parties.

Q. HOW MANY PEOPLE ARE CURRENTLY EMPLOYED AT THE JENKINSVILLE SITE?

A. As of March of 2015, of the approximately 3,500 construction personnel working at the site, 57% were South Carolina residents. An

additional approximately 560 SCANA, SCE&G and Santee Cooper employees are working full time on the project.

Q. WHAT IS THE PROJECT SAFETY RECORD?

A. SCE&G and WEC/CB&I are very proud of the current safety record at the site. As of May 2015, the project has logged over 25 million man hours on the site with only a minimal number of lost time accidents. This is remarkable testimony to the care and professionalism with which all parties are approaching work on these Units with respect to safety.

COST CATEGORIES FOR THE PROJECT

Q. PLEASE DESCRIBE HOW THE VARIOUS COSTS ASSOCIATED WITH THE UNITS ARE CATEGORIZED.

A. In Order No. 2009-104(A), the Commission reviewed and approved SCE&G's estimate of forecasted costs for the Units as shown in nine cost categories. Seven of these cost categories reflected costs agreed to in the EPC Contract. Four of those seven involve categories of fixed cost, which do not change, or firm costs which change only based on specified inflation indices ("Fixed/Firm Costs"). Two of the seven EPC categories involve costs where WEC/CB&I operates under established budgetary targets and SCE&G pays actual costs as incurred ("Target Costs"). The seventh is Time and Materials ("T&M") which are costs for allowances requiring pre-approval by SCE&G for things like start-up support, scaffolding, and licensing support. The final two cost categories are Transmission costs and

Owner's cost. These are activities that SCE&G undertakes directly and are outside of the scope of work of the EPC Contract with WEC/CB&I.

- Transmission cost includes the cost of the transmission facilities that SCE&G will build to integrate the Units into its transmission grid. It does not include the on-site switchyard which is part of the EPC Contract scope.
- Owner's cost include the costs of the NND teams and associated labor costs, and involve such things as site-specific licensing and permitting of the Units and their construction; regulatory costs such as NRC fees; insurance, including workers compensation insurance for all workers on site, builder's risk insurance and transportation risk insurance; construction oversight and contract administration costs; the costs of recruiting and training of operating personnel for the Units; the costs of overseeing the final acceptance testing of the Units and providing for interim maintenance of components of the Units as completed; the cost of NND facilities, information technology systems and equipment to support the project and the permanent staff of the Units; sales taxes, and other incidental costs for the site.

OWNER'S COST AND THE NND PROJECT

Q. WHAT IS THE COMPANY'S PHILOSOPHY CONCERNING THE NND PROJECT?

A. As I have mentioned in past testimony, apart from ensuring the safety of our public and the people, the Company has no greater priority than getting the deployment of the new nuclear Units right. Senior leadership, including our CEO Mr. Marsh, is directly involved in the management of this project and of escalation of issues to WEC/CB&I on a regular basis.

On the day to day operations level, the Company has put in place a team of people that are capable of interfacing with the NRC, overseeing the work of thousands of on-site contractors and subcontractors, a worldwide supply chain for highly specialized components and equipment, and the transportation and logistics required to bring those components and equipment safely together in Jenkinsville. All this must be done while recruiting and training a permanent staff that can operate and maintain the Units safely and efficiently when they go into service, and that can successfully conduct the acceptance testing that the NRC requires before the Units are put into commercial operation. This effort also requires SCE&G to keep in place a team of people who can ensure that the contractual aspects of the project are prudently managed, that the terms of the EPC Contract are enforced, and that we do all in our power to ensure that costs are controlled.

Q. DO YOU TAKE COST CONTROL SERIOUSLY?

A. We take cost control very seriously. Senior leadership for the project takes an active role in reviewing budgets, setting up systems, and engaging staff appropriately to ensure that only reasonable, necessary and prudent costs are included in the cost forecasts. As Company Witness Walker testifies in detail, our cost and staffing reviews are thorough and demanding. We will not jeopardize the safety or quality of the project, but by the same token, we will not tolerate unnecessary spending.

Q. UNDER THE EPC CONTRACT, WHAT ROLE DOES SCE&G PLAY IN THE LICENSING AND PERMITTING OF THE UNITS?

A. Apart from the Design Control Document for the AP1000, which WEC as owner of the technology was responsible to obtain, SCE&G is responsible for obtaining the major licenses and permits that are required to construct and operate the Units. SCE&G is responsible for procuring all LARs required by the project. Also, during construction and testing of the Units, SCE&G must ensure that it and its contractors comply with all terms and conditions of these licenses and permits.

Q. HOW DOES THE NRC SEE SCE&G'S CURRENT RESPONSIBILITIES AS OWNER AND LICENSE HOLDER?

A. Since March 30, 2012, SCE&G has been managing the project under active NRC nuclear construction and operation licenses, i.e., COLs, issued in SCE&G's and Santee Cooper's names. As the NRC is quick to remind us, the Company is now directly responsible to the NRC for the safety of

the Units as constructed and for QA/QC both on-site and in the shops and factories where components are being fabricated worldwide.

Q. WHAT IS SCE&G'S PHILOSOPHY ABOUT DEPLOYING THE RESOURCES REQUIRED TO MEET THESE CHALLENGES?

A. These Units will serve as a critical component of our generation portfolio for decades. They are expected to serve the needs of our customers for 60 years or more. With those facts in mind, SCE&G is committed to continuously monitoring the needs of the project and to adjust its staffing, training and resource plans whenever it concludes that doing so is necessary to protect the interests of the Company and its customers in this project.

Q. WHAT GROUP WITHIN SCE&G IS RESPONSIBLE FOR CARRYING OUT THE TASKS YOU HAVE DESCRIBED?

A. The NND teams have direct responsibility for the project. They are supported by resources from throughout SCE&G and SCANA. But the primary responsibility for the success of the project rests with the NND teams.

Q. HOW HAS SCE&G STRUCTURED THE NND TEAMS?

A. The NND teams are comprised of eight groups which include Nuclear Licensing, Design Engineering, Organizational Development and Performance ("OD&P"), Quality Systems, Construction, Business and Finance, Operational Readiness and Training. Other groups that share

resources with Unit 1 are Health Physics, Emergency Planning, Chemistry, and Security Services. In all cases, where resources are shared between units, there are strict accounting rules in place to ensure that each unit bears its full share of cost that benefit it.

In March 2015, the staffing of the NND teams was approximately 560 SCANA, SCE&G and Santee Cooper employees. The permanent staffing for the two Units is expected to be approximately 761 individuals (excluding security contractors). Many of the members of the NND teams will transition to permanent operating staff of the Units, although there will be some retirements and other attrition. The structure of the NND teams and the responsibilities of the eight areas that comprise them are discussed in Mr. Jones' testimony and exhibits.

Q. WHAT IS THE EXPERIENCE LEVEL OF THE LEADERS OF THESE TEAMS?

A. The members of the senior leadership team for the NND effort have an average of more than 35 years of experience in nuclear and major generating plant construction. All told, the seven senior leaders for the NND project represent 252 years of nuclear and major construction experience.

Q. WHAT PART OF THE COSTS INCLUDED IN THESE UPDATES ARE OWNER'S COSTS?

A. As Ms. Walker testifies, updates in Owner's cost forecasts represent $245 million[1] of the $698 million that we are presenting here for BLRA approval. These costs are the reasonable and prudent costs of fulfilling our responsibilities as the owner of this project.

Q. WHAT IS DRIVING THESE OWNER'S COST INCREASES?

A. As Mr. Jones and Ms. Walker testify in more detail, the majority of these Owner's cost increases are a result of the delay in the substantial completion dates of the Units. This delay will require SCE&G to support the project and the NND teams for 27 additional months as to Unit 2 and 25 additional months as to Unit 3. These delay related costs represent $214 million, or approximately 87% of the increase in Owner's costs. The other $31 million represents increases in personnel costs, facilities costs, software and systems costs and other expenses that must be incurred for SCE&G to meet its obligations as Owner and COL licensee in a reasonable and prudent way.

Q. DO YOU HAVE AN OPINION CONCERNING THE REASONABLENESS AND PRUDENCE OF THE ADJUSTMENTS TO THE STAFFING LEVELS AND COST SCHEDULES FOR THE NND PROJECT THAT THE COMPANY IS PRESENTING HERE?

[1] Unless otherwise specified, all cost figures in this testimony are stated in 2007 dollars and reflect SCE&G's share of the cost of the Units.

A. For the reasons set forth in this testimony, as well as those set forth in Mr. Jones' testimony and Ms. Walker's testimony, it is my opinion that the adjustments in the forecasts of Owner's cost for the NND project are reasonable and prudent costs of the Units. These costs reflect a prudent and valuable investment that the Company is making to protect the interest of its customers in these long-lived assets, as well as those of our partner Santee Cooper, in the project.

THE REVISED PROJECT SCHEDULE AND COST SCHEDULE

Q. PLEASE PROVIDE THE BACKGROUND FOR THE REVISED PROJECT SCHEDULE THAT IS PRESENTED IN THIS PROCEEDING.

A. Beginning in 2010, and consistently thereafter, SCE&G publicized its concerns about the inability of the module fabrication facility in Lake Charles, Louisiana, to produce submodules for the project in a timely-way. Initially, that Lake Charles facility was operated by Shaw Modular Solutions ("SMS"), a subsidiary of the Shaw Group, which was WEC's original partner in the construction consortium. As the Company has testified in past proceedings, and has been reported to ORS and the Commission regularly over this period, the Company, along with Southern Company, the other AP1000 owner, worked diligently to convince WEC and Shaw to make required changes.

In March 2012, SCE&G placed a permanent on-site inspector at the SMS facility. An inspector has been on site since. On multiple occasions during the period 2009-2012, at SCE&G's direction, SMS re-baselined its initial module fabrication and delivery schedule to account for its rate of production. But SMS was never able to prepare a schedule that reasonably reflected the effect of on-going delay.

In July 2012, CB&I announced its intention to acquire the Shaw Group. After that sale closed, in February 2013, SCE&G requested that WEC/CB&I produce a revised construction schedule that included a realistic and achievable production for submodules from the Lake Charles facility (now known as CB&I-LC), and a plan for completing the project in light of the submodule production delay. During this time, SCE&G urged WEC/CB&I to resolve its submodule production issues, and specifically to relieve the congestion issues that were impeding progress at its Lake Charles facility. In response, WEC/CB&I asked SCE&G for space to relocate certain aspects of submodule production from Lake Charles to designated work areas at the Jenkinsville site. This relieved some of the congestion at the Lake Charles facility and allows work crews to be hired in South Carolina to supplement those on site in Louisiana. CB&I also proposed to diversify it supply chain by outsourcing production of certain submodules to other fabricators. As a result, important aspects of the

submodule fabrication for Units 2 and 3 were assigned to other fabricators, including Oregon Iron Works in Oregon and IHI/Toshiba in Japan.

In late May 2013, SCE&G received a revised construction schedule from WEC/CB&I that sought to take into account the effects of production delay at the Lake Charles facility. SCE&G challenged important aspects of this schedule. WEC/CB&I agreed to conduct a thorough review of the schedule in light of delay to date, and to include is a full review of the engineering, procurement and construction resources necessary to support the plan.

In the third quarter of 2014, SCE&G received what WEC/CB&I termed a Revised, Fully-Integrated, Construction Schedule. Accompanying the construction schedule data was information related to the revised cost estimates for completing the project, the Estimated at Completion ("EAC") costs. SCE&G spent a number of months reviewing the schedule and cost information with WEC/CB&I and in negotiations with WEC/CB&I concerning costs and schedule mitigation to accelerate the substantial completion dates of the Units.

Based on those reviews and negotiations, SCE&G determined in March of 2015 that the cost and construction schedules as updated by WEC/CB&I through that time were in fact the anticipated schedules for completion of the project as envisioned by the BLRA. As Mr. Marsh testifies, Senior leadership approved those schedules, with updates as to

Owner's costs and other cost items, as the basis for the filings presently before the Commission.

The Revised, Fully-Integrated Construction Schedule, is the mitigated construction schedule for the Units as it was revised and finalized during the review process.

Q. WHAT DO YOU MEAN BY A MITIGATED CONSTRUCTION SCHEDULE?

A. There a number of ways to mitigate a construction schedule. One of the more common is to add additional shifts of labor. Another is to reallocate fabrication activities to multiple vendors, as we have done with sub-modules going forward. Another is to change the method or sequence of construction activities so that delayed components do not hold up other specific tasks. For example, if delivery of a module is delayed, concrete forms can be used to allow concrete to be placed that would otherwise have been poured directly against the module wall. In many cases, schedule mitigation means additional expense, and that additional expense can become a matter of negotiation between the owner and contractor.

Q. PLEASE DESCRIBE EXHIBIT NO. _ (SAB 2).

A. Exhibit No. _ (SAB-2) is the Milestone Construction schedule based on the Revised, Fully-Integrated Construction Schedule, which we proposed for Commission approval as the current anticipated construction schedule for the Units as envisioned by the BLRA.

Q. ARE THE SCHEDULES PRESENTED HERE REASONABLE AND PRUDENT SCHEDULES FOR COMPLETION OF THE PROJECT?

A. The schedules that SCE&G has presented here are the current anticipated schedules for completing the Units as envisioned by the BLRA and are reasonable and prudent schedules for completing the project. They should be approved as the new BLRA schedules for the Units.

These schedules represent the best current forecasts of the anticipated costs and the anticipated construction schedules to complete the project. They are based on the cost projections and construction schedule data that WEC/CB&I has provided to SCE&G and which SCE&G has carefully studied and reviewed consistent with its duties as Owner. The construction schedule is based on a comprehensive identification and sequencing of the tens of thousands of construction activities that must be accomplished for the project to be completed. The cost schedule is based on identifying labor and other costs that must be incurred to complete the scopes of work listed on those schedules.

SCE&G's construction experts have reviewed the schedules presented here. We find that their scope and sequencing is logical and appropriate. As to both timing and cost, the schedules are based on productivity factors that WEC/CB&I represents can be met given the current status of the project. Meeting these productivity factors will pose a challenge to WEC/CB&I. But doing so will benefit the project both in

terms of cost and schedule. For that reason, as owner SCE&G has no basis or interest in insisting that WEC/CB&I should use less challenging assumptions. However, SCE&G does recognize that WEC/CB&I has set itself a significant challenge as to future productivity.

The schedules presented here are the schedules that WEC/CB&I has represented to SCE&G that it is prepared to meet and that SCE&G has carefully reviewed with WEC/CB&I. For those reasons, I can affirm that these schedules represent the best and most definitive forecast of the anticipated costs and construction schedule required to complete this project that is available as of the date of this filing of the testimony. These updated costs are not in any way the result of imprudent management of the project by SCE&G. Further, these costs do not include speculative or un-itemized costs, such as owner's contingencies. *S.C. Energy Users Comm. v. S.C. Pub. Serv. Comm'n*, 388 S.C. 486, 697 S.E.2d 587 (2010). While additional costs may be incurred after the date of this filing of the petition in this proceeding, those costs are not known at present and so cannot be included here.

Q. COULD THESE SCHEDULES CHANGE?

A. These schedules can and almost certainly will change. That is because the construction schedule for any project as complex as this one will be dynamic. It can be expected to vary from month to month during the construction period as conditions change. The construction and cost

forecasts will be subject to ongoing change and revision, as any forecast would be.

OVERVIEW OF INCREASE IN FORECASTED EPC CONTRACT COSTS

Q. PLEASE PROVIDE AN OVERVIEW OF THE INCREASE IN THE EPC CONTRACT COST FORECASTS SCE&G IS PRESENTING IN THIS PROCEEDING.

A. This total increase of $698 million is made up of (1) changes in the Estimated at Completion ("EAC") cost under the EPC Contract, (2) ten additional change orders to the EPC Contract, (3) reallocation of certain on-site transmission costs between SCE&G and Santee Cooper, and (4) changes in Owner's cost. Company witnesses Mr. Jones and Mrs. Walker will address these items in detail in their pre-filed direct testimony in this matter. I am familiar with the matters they discuss and can confirm the accuracy of their testimony. I also affirm that cost and construction schedules presented here accurately reflect the anticipated cost and schedule for completion of the Units and in no way are the result of any imprudence on the part of SCE&G.

DISPUTED COSTS

Q. YOU MENTIONED EARLIER THAT SCE&G IS NOT RELEASING OR WAIVING ANY CLAIMS AGAINST WEC/CB&I. PLEASE EXPLAIN WHAT COSTS YOU ARE CHALLENGING.

A. At present, SCE&G is challenging several categories of costs being billed to it by WEC/CB&I. Those challenges include:

1. Costs invoiced by WEC/CB&I where the costs are increased costs related to fixed or firm items where SCE&G has entered into an agreement with WEC/CB&I to resolve claims for a fixed amount of compensation. For example, WEC/CB&I has attempted to bill SCE&G for module rework. Modules are a fixed cost item. SCE&G has returned the invoices for such charges as improper since additional costs associated with these items are a WEC/CB&I responsibility.
2. Cost invoiced by WEC/CB&I which are related to general project delay. SCE&G takes the position that these delay costs are WEC/CB&I payment responsibility for reasons including WEC/CB&I failure to meet its responsibilities under the EPC Contract to effectively manage the project.
3. Cost invoiced by WEC/CB&I which are the result of WEC/CB&I not meeting productivity factors. SCE&G believes that WEC/CB&I is under a contractual obligation to efficiently conduct its construction activities, and some or all of any labor costs based on failure to meet productivity factors is WEC/CB&I's payment responsibility.

As to invoices for costs which are 100% unjustified, SCE&G believes it is contractually entitled to return the invoices as improperly issued and pay nothing. This is permissible under provisions of the EPC Contract that only require SCE&G to pay for properly invoiced items.

As to invoiced costs where only part of any given invoiced amount would be subject to dispute, SCE&G will withhold part of the payment. Under the EPC Contract, SCE&G is required to pay at least 90% of the disputed amount pending resolution of its dispute. Other provisions of the EPC Contract permit WEC/CB&I to cease work and treat the project as if it had been suspended at SCE&G's request if 90% payments are contractually required but are not made after proper invoicing. WEC/CB&I has reserved its rights under these provisions to cease work on the site if required payments are not made.

As to delay costs, the revised cost forecast associated with the Revised, Fully-Integrated Construction Schedule shows the amount by which overall project costs have increased due to delay through the end of the project. A percentage of increased cost due to delay has been computed for each cost category under the EPC Contract where delay has increased costs. Since May 5, 2015, SCE&G has applied that percentage to the charges in each invoice and only paid 90% of the disputed amount as the EPC Contract provides.

As to productivity factors costs, SCE&G will determine on a case by case basis the amount of additional charges that is due to inefficiency and from this amount, SCE&G will withhold 10%.

Q. WHY ARE DISPUTED AMOUNTS PROPERLY INCLUDED IN THE COST SCHEDULES PRESENTED HERE?

A. The BLRA requires SCE&G to present the anticipated cost to complete the project. SCE&G in no way disputes the fact that the project will incur the amount presented here to complete the Units. The question is who is required to absorb these additional and disputed costs. SCE&G intends to pursue its dispute of these certain costs, and going forward will pay only 90% of those costs pending resolution of those disputes. When SCE&G pays those 90% amounts, they will become paid capital costs of the project and will be reflected in CWIP for the project. For that reason, these 90% payments are properly included in the cost projections for the Units.

At present, the outcome of the disputes with WEC/CB&I is not known. Therefore, SCE&G does not have any basis to forecast any additional costs or cost reductions beyond the 90% payments it knows it must make. We have only included in this filing non-speculative, itemized costs which are costs that SCE&G fully anticipates paying. Revised rates only reflect costs actually paid. If for any reason, certain costs are not paid,

they will not be booked as capital costs of the Units, and will not be used for calculating revised rates or for any other ratemaking purposes. Any future reductions in the anticipated cost presented here due to resolution of claims against WEC/CB&I or other reasons are also not known, are unquantifiable, and therefore are not properly included in the current BLRA cost projections for the project.

Q. HOW WILL THESE DISPUTES BE RESOLVED?

A. SCE&G is committed to resolving these disputes by negotiation if possible. However, litigation may occur. The venue specified in the EPC Contract is the Southern District of New York. If litigation occurs, there is no way to determine how long it would take to resolve the disputes. While the amounts in dispute are important, SCE&G and its customers have a primary interest in seeing the Units completed in a timely, safe and efficient manner. This is particularly important since if Unit 3 is not placed in service before January 1, 2021, SCE&G and its customers could lose the value of federal Production Tax Credits associated with that Unit. The value of those credits, grossed up for tax, could equal approximately $1.1 billion. That is one important reason to maintain focus on the goal of the project and not let disputes interfere with completing the project in a timely way. The overarching goal is to ensure that the project is completed in a safe and timely fashion.

Q. HOW DO YOU RESPOND TO THE CLAIM THAT INCLUDING THE 90% PAYMENTS IN BLRA COSTS TAKES AWAY SCE&G'S INCENTIVE TO REACH A FAIR SETTLEMENT OF CLAIMS AGAINST WEC/CB&I?

A. There are multiple reasons that this is not the case.

1. SCE&G seeks to include the 90% payments in its BLRA cost schedule because they will in fact be part of the capital outlays for this project. SCE&G hopes that it will recover all or part of those payments from the WEC/CB&I. But this recovery is not guaranteed. As a result, we are in no different position than in cases where we complete a plant or project, and once it is closed to rate base, we pursue warranty or contractual claims against suppliers. Those claims, if successful, lower the cost of the plant or project after the fact. This happens in the ordinary course of our business.

2. Further, to withhold these payments from the capital costs recognized under the BLRA would do the opposite of what the question implies. Rather than creating an incentive for SCE&G to aggressively and doggedly pursue the claims against WEC/CB&I, it would create an incentive for SCE&G to settle claims quickly so that the settlement amounts could be included in BLRA filings. Mr. Marsh has testified that it is critical to our financial plan that we generate cash returns through revised rates filing on the capital we spend on this project. If the only way to

include disputed costs in revised rates is to settle the underlying dispute, then SCE&G will be put under financial pressure to settle as quickly as possible. That fact would not be lost on WEC/CB&I and would likely change their bargaining position in settlement negotiations.

Q. WHAT WILL HAPPEN IF SCE&G DOES RECOVER PART OF THE DISPUTED AMOUNTS THAT IT HAS PAID?

A. If through negotiation or litigation, SCE&G recovers any past payments to WEC/CB&I or reduces any current payments, those amounts will be reflected as reductions to the accounts where the capital cost of the project are recorded. This will reduce the financing costs to be charged to customers and the reduction will be reflected in lower revised rates in subsequent revised rates proceedings going forward.

CONCLUSION

Q. ARE THE UPDATES REQUESTED IN THIS PROCEEDING REASONABLE AND PRUDENT?

A. Yes they are. As President for Generation and Transmission, I am involved on an on-going basis with all major aspects of the construction project and am directly involved in the negotiations with WEC/CB&I over the issues discussed here. The adjustments requested in this proceeding include adjustments to the construction schedule as well as to EPC costs and Owner's cost. They are adjustments that I know to represent reasonable and prudent changes in the cost and construction schedules for

the Units. Making these adjustments is necessary to create the anticipated cost and construction schedules for the Units as required by the BLRA. Based on my knowledge of the project, and in my professional opinion, the adjustments are in no way the result of any lack of responsible and prudent management of the project by the Company or of imprudence by the Company in any respect. I ask the Commission to approve these adjustments as presented in the exhibits to Mrs. Walker's testimony.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.